

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

Preliminary Draft Staff Report Proposed Amended Rule 1420.1 – Emissions Standard for Lead From Large Lead-Acid Battery Recycling Facilities

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Deputy Executive Officer

Planning, Rule Development, and Area Sources
Elaine Chang, DrPH

Assistant Deputy Executive Officer

Planning, Rule Development, and Area Sources
Laki Tisopulos, Ph.D., P.E.

Planning and Rules Manager

Planning, Rule Development, and Area Sources
Susan Nakamura

Author: Eugene Kang - Air Quality Specialist

Contributors: Michael Garibay – Supervising Air Quality Engineer
Marco Polo – Air Quality Engineer
Carmelita Benitez – Air Quality Inspector II
Michal Haynes – Air Quality Inspector II

Reviewed by: Cheryl Marshall – Program Supervisor
William Wong – Principal Deputy District Counsel

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EXECUTIVE OFFICER:

BARRY R. WALLERSTEIN, D.Env.

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EXECUTIVE SUMMARY

BACKGROUND

LEAD

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IMPACT ASSESSMENT

BACKGROUND

The South Coast Air Quality Management District (AQMD) is responsible for developing and enforcing air pollution control rules and regulations in the South Coast Air Basin (Basin). By state law, the AQMD is required to adopt an Air Quality Management Plan (AQMP) demonstrating compliance with all federal regulations and standards such as National Ambient Air Quality Standards (NAAQS) for the Basin [H&S Code Section 40460 (a)]. On October 15, 2008, the U.S. EPA amended both the primary and secondary NAAQS from a level of $1.5 \mu\text{g}/\text{m}^3$ to $0.15 \mu\text{g}/\text{m}^3$ averaged over a rolling 3-month period, along with changes to monitoring and reporting requirements.

The purpose of Proposed Rule 1420.1 (PR 1420.1) is to propose a new rule for large lead-acid battery recycling facilities which are the highest stationary source emitters of lead in the Basin. In addition, PR 1420.1 is designed to address the amended NAAQS for lead to ensure the Basin can achieve the revised standard. Other lead-emitting sources will be addressed in a future amendment to District Rule 1420 – Emission Standards for Lead.

LEAD

Lead is a naturally occurring metal found in the earth's crust. The metal is grayish in color and is soft, malleable, and ductile. It is also a limited electrical conductor and highly impervious to corrosion. This unique combination of physical properties has led to its many uses in industries such as construction, piping, roofing, and lead-acid storage battery manufacturing. Due to its value, some business operations are based solely on recovering lead from lead-bearing materials through secondary smelting operations.

Lead is classified as a "criteria pollutant" under the federal Clean Air Act (CAA). It is also identified as a carcinogenic toxic air contaminant by the Office of Environmental Health and Hazard Assessment (OEHHA). Chronic health effects include problems such as nervous and reproductive system disorders, neurological and respiratory damage, cognitive and behavioral changes, and hypertension. Exposure to lead can also potentially increase the risk of contracting cancer or result in other adverse health effects. Young children are especially susceptible to the effects of environmental lead because their bodies accumulate lead more readily than do those of adults, and because they appear to be more vulnerable to certain biological effects of lead including learning disabilities, behavioral problems, and deficits in IQ.

AFFECTED INDUSTRIES

The AQMD staff has conducted an analysis of lead-emitting sources in the Basin that may contribute to non-attainment status with the new lead NAAQS. Measurements taken at AQMD's monitoring network for ambient air lead concentrations were reviewed for years 2007 through 2009, along with an analysis of lead emissions using multiple data sources including AQMD's Annual Emissions Reporting (AER) program, permitting data, and compliance data for years 2004 through 2007. Staff's assessment concluded that lead-acid battery recycling facilities are

the only known source category that has demonstrated consistent measurements in non-attainment with the new NAAQS.

PROPOSED RULE 1420.1

PR 1420.1 is designed to address lead emissions from lead-acid battery recycling facilities in order to achieve attainment with the $0.15 \mu\text{g}/\text{m}^3$ standard by as early as 2015 based on U.S. EPA timeframes. Currently, emissions of lead from stationary sources, including lead-acid battery recycling facilities, are controlled by District Rule 1420 – Emissions Standard for Lead. Rule 1420 was adopted in August 1992 and controls emissions of lead from stationary sources which use or process lead-containing materials. The rule was adopted in order to ensure that facilities would not discharge emissions which would cause ambient air concentrations of lead to exceed the 1978 federal and state ambient air quality standard of $1.5 \mu\text{g}/\text{m}^3$. Rule 1420 ensures that the standard is met through requirements for emission control systems and good housekeeping practices.

Although lead-acid battery recycling facilities are subject to Rule 1420, separate and more stringent requirements relating to operations and processes specific to lead-acid battery recycling facilities are necessary to ensure that the new standard is met. PR 1420.1 will require large lead-acid battery recycling facilities to:

- Install total enclosures of all areas used for the processing or storage of lead-containing materials associated with lead-acid battery recycling operations;
- Vent total enclosures and all other lead emission points to control devices capable of meeting a 99% lead or PM control efficiency;
- Conduct more stringent housekeeping practices to minimize fugitive lead-dust emissions;
- Conduct periodic source test of all lead control devices;
- Conduct ambient air lead monitoring; and
- Meet an ambient air lead concentration of $0.15 \mu\text{g}/\text{m}^3$ averaged over any 30-day period by January 2012.

IMPACT ASSESSMENT

A socioeconomic assessment will be conducted to analyze the costs associated with compliance under PR 1420.1. PR 1420.1 impacted facilities will be required to install total enclosures for the remaining unenclosed portions of their lead-acid battery recycling operations, specifically the raw materials preparation storage areas. Additional and more prescriptive housekeeping practices will also be required. Periodic source tests will also need to be conducted for all lead control devices to either meet a mass emission standard or control efficiency. The socioeconomic assessment for PR 1420.1 will be available 30 days before the Public Hearing.

A CEQA analysis will also be conducted to assess the environmental impacts associated with the proposed requirements of PR1420.1. Upon completion, the CEQA document will be released for public review and comment, and will be available at AQMD headquarters by calling the AQMD

Public Information Center at (909) 396-3600, or by accessing AQMD's CEQA website at www.aqmd.gov/ceqa.

CHAPTER 1: BACKGROUND

INTRODUCTION

HEALTH EFFECTS OF LEAD

REGULATORY HISTORY

AFFECTED INDUSTRIES

PROCESS DESCRIPTION AND LEAD EMISSION POINTS

CONTROL STRATEGIES

AMBIENT AIR LEAD CONCENTRATION DATA

INTRODUCTION

PR 1420.1 addresses exposure to lead emissions from lead-acid battery recycling facilities. The purpose of the proposed rule is to protect public health and ensure attainment with the amended lead NAAQS. As required by the federal Clean Air Act, the U.S. EPA periodically reviews the standard to determine if changes are warranted. Based on review of health studies, the U.S. EPA has determined that the standard of $1.5 \mu\text{g}/\text{m}^3$ set in 1978 was not sufficient to protect public health and welfare with an adequate margin of safety. The standard has been lowered to $0.15 \mu\text{g}/\text{m}^3$ based on studies that demonstrate health effects at much lower levels of lead than previously believed. Selection of the new standard provides increased protection for children and other at-risk populations against an array of health effects, most notably including neurological effects in children, including neurocognitive and neurobehavioral effects.

Large lead-acid battery recycling facilities have been determined by AQMD staff to be the highest stationary source emitters of lead in the Basin. Staff's analysis has also shown lead-acid battery recycling facilities to be the only known source category that currently demonstrates ambient air lead concentration measurements that cause non-attainment with the new lead NAAQS. PR 1420.1 is in addition to Rule 1420 – Emission Standards for Lead which addresses lead emissions from any stationary source that uses or processes lead-containing material. Although Rule 1420 also applies to lead-acid battery recycling facilities, it does not contain specific and adequate control measures for this source category to minimize lead emission exposure such that ambient air lead concentrations will comply with the new lead NAAQS. Other lead-emitting sources in the Basin will be further analyzed and addressed in a future amendment to Rule 1420.

HEALTH EFFECTS OF LEAD

Human exposure to lead occurs in a variety of ways with common routes being that of inhalation and ingestion. Ingestion of lead-containing paint chips and soil with deposited atmospheric lead is a source of concern for exposure for children. The most widely used indicator of lead exposure in many studies is the amount of lead measured in whole blood because of the direct relationship with blood lead (PbB) levels and health effects. Clinical effects resulting from high-level lead exposure include nervous and reproductive system disorders, neurological and physical developmental effects, cognitive and behavioral changes, and hypertension. Young children are especially susceptible to the effects of environmental lead because they appear to be more vulnerable to certain biological effects of lead including learning disabilities, deficits in IQ, and behavioral problems.¹ Health & Safety Code Section 39669.5, "Special Provisions for Infants and Children," required CARB to identify up to five TACs that may cause infants and children to be especially susceptible to illness. The "Prioritization of Toxic Air Contaminants Under the Children's Environmental Health Protection Act" document released in 2001 by the Office of Environmental Health Hazard Assessment (OEHHA) lists lead as one of the original five toxic air contaminants.

¹ Environmental Protection Agency, "Lead in Air," (<http://www.epa.gov/air/lead/health.html>), June 12, 2009.

Lead is classified as a probable human carcinogen by both the International Agency for Research on Cancer and the U.S. EPA. OEHHA classified lead as a carcinogenic toxic air contaminant and it was added to the AQMD Rule 1401 list of TACs in 1992. AQMD's "Risk Assessment Procedures for Rules 1401 and 212" Tier 1 screening value for lead indicates that a lifetime exposure (70 years for residential receptors, 40 years for worker receptors) to 0.628 pounds of lead a year at 25 meters could potentially cause one additional case of cancer out of a million cases.

Under the federal Clean Air Act, lead is classified as a "criteria pollutant." Lead has observed health effects at ambient concentrations. The U.S. EPA has thoroughly reviewed the lead exposure and health effects research, and has prepared substantial documentation in the form of a Criteria Document to support the selection of the 2008 NAAQS for lead. The Criteria Document used for the development of the 2008 NAAQS for lead states that studies and evidence strongly substantiate that PbB concentrations in range of 5-10 µg/dL, or possibly lower, could likely result in neurocognitive effects in children. The report further states that "there is no level of lead exposure that can yet be identified with confidence, as clearly not being associated with some risk of deleterious health effects."²

Based on studies conducted by the Clean Air Scientific Advisory Committee (CASAC), it was concluded that a "population loss of 1-2 IQ points" resulting from exposure to ambient air lead concentrations "is highly significant from a public health perspective." The EPA has determined that a primary and secondary standard of 0.15 µg/m³ is requisite to provide an adequate margin of safety that would ensure the protection of public health and the environment regarding the aforementioned population IQ loss.³

REGULATORY HISTORY

Lead-acid battery recyclers have been subject to regulation for more than two decades. Below is a chronology of regulatory activity:

- In November 1970, CARB set the state ambient air quality standard for lead at 1.5 µg/m³ averaged over 30 days.
- In October 1978, the U.S. EPA adopted the NAAQS for lead requiring attainment with a lead ambient concentration of 1.5 µg/m³ averaged over a calendar quarter.
- In September 1992, the AQMD adopted Rule 1420 – Emissions Standard for Lead. The rule incorporated the state ambient air quality standard and required control devices on lead emission points, control efficiency requirements for lead control devices, housekeeping, and monitoring or modeling of ambient air quality.
- In October 1992, OEHHA classified lead as a carcinogenic toxic air contaminant and assigned to it a cancer potency factor and a cancer unit risk factor.

² Environmental Protection Agency, Office of Research and Development, "Air Quality Criteria Document for Lead, Volumes I-II," October 2006.

³ Environmental Protection Agency, "National Ambient Air Quality Standards for Lead; Final Rule," 40 CFR Parts 50, 51, 53, and 58, November 2008.

- In June 1997, the U.S. EPA adopted the National Emissions Standards for Hazardous Air Pollutants (NESHAPS) from Secondary Lead Smelting. The federal regulation required lead emission concentration limits of lead control devices, control of process fugitive emissions, monitoring, recordkeeping, and reporting.
- On October 15, 2008, the U.S. Environmental Protection Agency (EPA) signed into legislation an amended NAAQS for lead of $0.15 \mu\text{g}/\text{m}^3$.

The new lead NAAQS requires full attainment by each state no later than five years after final designations for attainment status are made. Demonstration of attainment is to be based on measurements using a rolling 3-month averaging form to be evaluated over a 3-year period. Measurements are to be determined by U.S. EPA-required monitoring networks within each state which consist of both source-oriented and non-source-oriented monitors. The AQMD has already established the required monitoring network for both source and non-source-oriented lead monitors.

AFFECTED INDUSTRIES

The AQMD staff analyzed multiple data sources, including AQMD's Annual Emissions Reporting program for years 2004 through 2007, permitting data, and compliance data to initially identify the universe of lead-emitting sources. Approximately 600 lead sources were identified and analyzed. Almost all facilities located within the Basin emit less than 0.15 tons of lead per year, an amount far below the 1.0 tons per year threshold warranting source-oriented monitoring at these facilities. However, of the estimated 600 lead-emitting facilities identified, one facility was found with consistent average lead emissions of greater than 1.0 ton/yr. Exide, Inc. is located in the city of Vernon and has an average of more than 1.5 tons of lead emissions per year, with its highest annual emissions at 1.99 tons. Quemetco is located in the City of Industry and has the second highest average lead emissions of 0.28 tons per year with a high of 0.32 tons per year. This data was cross referenced with ambient air lead concentration data obtained from the AQMD's ambient air monitoring network. Analysis indicated that these two sources were also the only facilities and industry category that demonstrated consistent readings exceeding the new lead NAAQS.

The lead attainment assessment conducted by the state of California led to the same determination, and in October 2009, CARB submitted recommendations to the U.S. EPA of non-attainment status for the portions of Los Angeles County that are located within the Basin. Final designation of attainment status by the U.S. EPA may be made as early as 2010 and would require the Basin to be in attainment with the new NAAQS no later than five years, or 2015. A State Implementation Plan (SIP), outlining the strategy to demonstrate attainment with the lead NAAQS, must also be submitted by the AQMD within 18 months of the final designation date.

PROCESS DESCRIPTION AND LEAD EMISSION POINTS

Lead-acid battery recycling facilities are secondary lead smelting operations where spent lead-acid batteries, mostly automotive, and other lead-bearing materials are received from various sources and processed to recover lead, plastics, and acids. The process mainly involves the

sorting, melting, and refining of lead-acid batteries, which ultimately produces lead ingots that are then sold to other entities. Below is a general description of the process including potential lead emission points:

- I. **Phase I – Raw Materials Processing:** Lead-bearing materials recovered from lead-acid batteries are prepared and processed prior to being charged (loaded) to a smelting furnace. Lead dust emissions may result during the crushing of lead-acid batteries and from the handling and transporting of lead-bearing materials.
 - a. **Receiving and Storage:** Spent lead-acid batteries are usually received on pallets that are either stored or sent directly to conveyors for immediate crushing.
 - b. **Battery Breaking/Crushing:** The spent lead-acid batteries are unloaded from conveyors and loaded into a hammer mill system where they are crushed whole. The crushed material is then placed into a series of tanks filled with water in order to clean materials of the acids. Through gravity separation, the crushed material sinks to the bottom of the tanks and goes through a series of screens to further isolate lead-bearing materials. The materials are then typically stored in open or partially covered piles if not required for immediate charge preparation.
 - c. **Charge Preparation/Rotary Drying/Sweating:** Recovered lead-bearing materials are prepared by blending it with stored lead scrap and reagents prior to being charged to a furnace. The metallic scrap materials are placed in dryers to remove moisture prior to charging to a furnace in order to reduce furnace upsets (puffs and explosions). The materials are then sweated (subjected to temperatures above the melting temperature of lead, but below that of the other metals) to separate lead from other metals with higher melting points.
- II. **Phase II – Smelting:** Smelting is the production of crude lead by melting and separating the lead from metallic and non-metallic contaminants and by reducing oxides to elemental lead. Smelting is carried out in blast, reverberatory, and rotary kiln furnaces. These furnaces emit high levels of lead fumes during the charging and tapping processes.
 - a. **Blast furnaces:** Typically, “hard” lead, or antimonial lead (containing ~10% antimony) is produced in blast furnaces. Scrap metal, re-run slag, scrap iron, coke, recycled dross, flue dust, and limestone are used as charge materials to the furnace. Process heat is produced by the reaction of the charged coke with blast air that is blown into the furnace.
 - b. **Reverberatory furnaces:** Semi-soft lead (containing ~3-4% antimony) is produced in reverberatory furnaces. Lead scrap, metallic battery parts, oxides, dross, and other residues are used as charge materials to the furnace. The charge materials are heated directly using natural gas, oil, or coal.

III. Phase III – Refining and Casting: Refining and casting the crude lead from the smelting process can consist of softening, alloying, and oxidation, depending on the degree of purity or alloy type desired. Crude lead produced during smelting operations is remelted and refined by the addition of reagents, such as sulfur and caustic soda. The purified lead is then cast into molds or ingots. Refining furnaces and kettles are typically gas or oil-fired and maintained at operating temperatures between 600-1300 degrees F. Lead fumes may be emitted when molten lead is transferred to refining kettles and lead particulates may become airborne off refining kettle surfaces due to updrafts created by thermal rise.

- a. **Alloying furnaces:** Alloying furnaces are kettle furnaces used to simply melt and mix ingots of lead and alloy materials, such as antimony, tin, arsenic, copper, and nickel.
- b. **Refining furnaces:** Refining furnaces are used to either remove copper and antimony for soft lead production, or to remove arsenic, copper, and nickel for hard lead production. Sulfur may be added to the molten lead to remove copper. The resultant copper sulfide is skimmed off as dross and may be processed in a blast furnace to recover residual lead. Aluminum chloride is used to remove copper, antimony, and nickel.
- c. **Oxidizing furnaces:** Either kettle or reverberatory units are used to oxidize lead and to entrain the product lead oxides in the combustion air stream for subsequent recovery in high-efficiency baghouses.

CONTROL STRATEGIES

Several types of controls for lead emissions are currently used at the affected lead-acid battery recycling facilities in the Basin. Lead emissions from lead processes discussed in the previous section are vented to one or more lead control devices listed below:

Baghouses and Filters

Baghouses operate by collecting particles on a fabric filter. Typically, they consist of fabric bags of tubular or envelope shapes. As an air stream flows through the bags, small particles are initially captured and retained on the fabric filter by one or a combination of the following collection mechanisms: impaction, direct interception, diffusion, electrostatic attraction, and gravitational settling. Once dust has accumulated on the walls of the bags, the “dust mat” acts as a sleeve to further increase particulate matter capture.

Arrays of filters are also used to collect particulate matter. They can be used after the bags in a baghouse to further reduce emissions or can be used alone as in a spray booth. Filters are often used in combination with a prefilter which is “changed out” on a regular basis allowing the bank of filter cartridges to last longer.

Baghouses are commonly used in metal melting operations. They have one of the highest control efficiencies for particulate emissions, and the captured particulate can be recycled to recover metal. Operating parameters of melting operations, such as exhaust stream temperature, gas stream velocity, and particulate chemical properties must be taken into account when designing the baghouse.

Daily maintenance and monitoring of the baghouse is necessary to ensure that it continuously meets the required standard of efficiency. Gas volume, temperature, pressure drop, and dust load are monitored continuously or intermittently. Baghouse shaking and sending pulses of air backwards through the bags is done at specific intervals, or when the bags are overloaded, to remove the captured particulate matter from the bags and drop it into a hopper below the bags.

Baghouse and filter technology combined can achieve an overall particulate matter capture efficiency certifiable up to 99.97 percent. The well designed baghouse can control 99 percent of particulate emissions. The capture efficiency of lead particulates is anticipated to be slightly lower, since metals are found in greater amounts on smaller particles. The lead removal efficiency is at least 98 percent for a baghouse with 99 percent efficiency for particulates.

All facilities subject to this rule would be able to use baghouses or filter systems to control particulate lead emissions from most all operations in the lead-acid battery recycling processes. Examples include lead emissions coming from the battery breaking areas and all smelting, refining, and casting operations.

Wet Scrubbers

Wet scrubbers remove both particulate matter and gases from industrial process gas streams. In lead-acid battery recycling operations, wet scrubbers are typically used to remove residual lead particulates and sulfur oxides from the exhaust of baghouses that control emissions from rotary dryers and smelting furnaces. There are a variety of scrubber designs. However, only a limited number can remove small particulates from an exhaust stream. Wet scrubbers are capable of 98 percent collection efficiencies for particles as small as 5 microns in size. Two scrubbers designed to remove small particulates are the ionizing wet scrubber and the venturi scrubber.

In an ionizing wet scrubber, the gas stream first enters a chamber where a high voltage is used to ionize the gas stream. The second chamber is a wet scrubbing chamber, where the ionized particles and gases are attracted to the surface of the chamber and the scrubbing liquid. Larger size particles are removed by water through inertial impaction.

Venturi scrubbers are used by some facilities in the District. In these scrubbers, the exhaust stream is passed through a constriction (the venturi) where the scrubbing liquid is sprayed in. The turbulence at and after the venturi promotes contact of particles with the scrubbing liquid droplets. High particulate matter removal efficiencies for small particles can be achieved with this type of scrubber.

High-Efficiency Particulate Arrestors (HEPA)

Used in conjunction with a prefilter, high-efficiency particulate air filters can trap particles as small as 0.3 μm at an efficiency of 99.97 percent or greater. Like cartridge filters, HEPA filter elements are of pleated construction. HEPA filters are generally limited to ambient temperature (100°F), though special applications for higher temperatures are available. Unlike bags or cartridge filters, HEPA filters are not automatically cleaned. When a HEPA filter element becomes loaded with particulate matter, the element is changed out and disposed of as hazardous waste. Filters can be applied to controls such as baghouses to reduce lead emissions from lower temperature exhaust streams and fugitive lead-dust emissions collected within total enclosures. They can also be utilized in negative air equipment or vacuums used to conduct housekeeping activities throughout the facility.

Electrostatic Precipitators/Wet Electrostatic Precipitators

Electrostatic precipitators operate by charging the effluent particulate matter with a highly ionized gas stream and then attracting the charged particles to an oppositely charged metal wall. Typically, a cylindrical metal tube is used with an ionized wire running through it. As the ions move outward toward the oppositely charged cylinder, the particles are also ionized, and are deposited on the cylinder. The cylinder wall is periodically vibrated to collect particulate matter into a hopper. This technology can achieve 99 percent efficiency for total particulate matter as small as 1 μm . Electrostatic precipitators in lead-acid battery recycling operations are typically used downstream other lead controls such as baghouses, and treat exhaust streams with smaller lead particulates.

AMBIENT AIR LEAD CONCENTRATION DATA

The 2008 NAAQS for lead requires that each state install and operate a network of ambient air lead monitors in order to determine attainment status with the standard. Two types of monitors are required; those that are population-based or “non-source-oriented,” and those that are facility-based or “source-oriented.” The lead attainment assessment conducted by the state of California was based on data from both sets of monitoring networks, and led to recommendations to the U.S. EPA of non-attainment status for the portions of Los Angeles County that are located within the Basin. Details pertaining to the monitors and data used for the assessment are explained below.

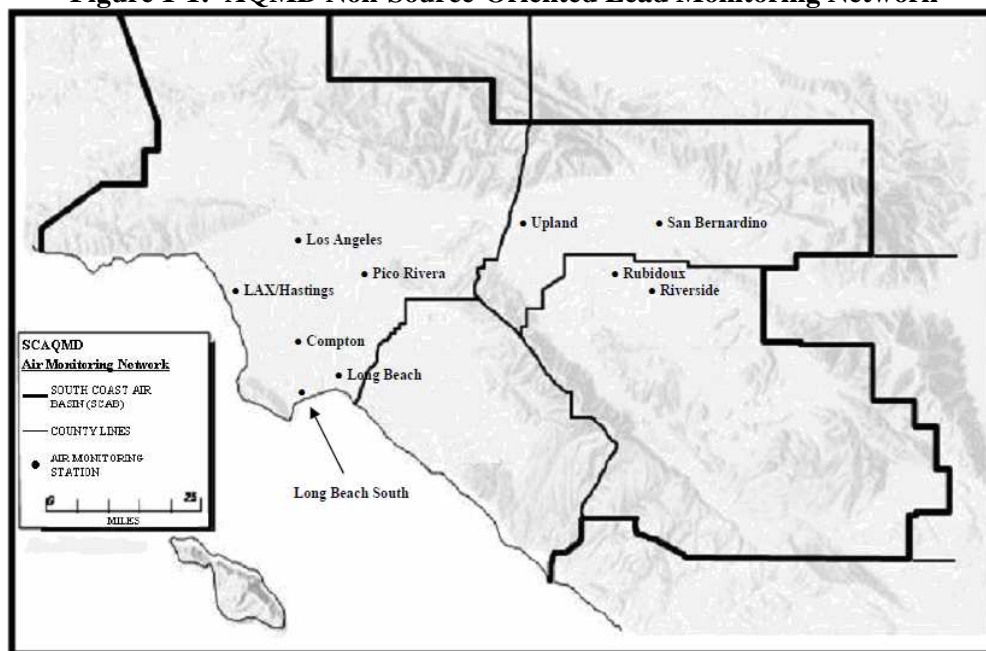
Non-Source-Oriented Monitors

The AQMD currently operates a non-source-oriented monitoring network of 10 locations throughout the Basin that comply with the monitoring network design required by the new lead NAAQS. The spatial distribution of these sites is shown below in Figure 1-1.

The U.S. EPA requires a minimum of one non-source-oriented monitor located in every Core Based Statistical Area (CBSA) with a population of 500,000 people or more. These monitors are required to be placed in neighborhoods within urban areas impacted by re-entrained dust from roadways, closed industrial sources of lead, or other fugitive dust sources of lead. Monitoring agencies are required to install and operate the required non-source-oriented monitors by January 1, 2011. The AQMD’s current lead monitoring network meets the minimum requirements for

the EPA non-source-oriented monitoring specified in the new lead NAAQS, therefore data from the existing monitors were used to provide an indication of lead attainment status on a regional scale. Data values from measurements made at non-source-oriented monitors in the Basin were reviewed for years 2007 through 2009 and showed concentrations well below the new lead NAAQS ranging from $0.01 \mu\text{g}/\text{m}^3$ to $0.03 \mu\text{g}/\text{m}^3$.

Figure 1-1: AQMD Non-Source-Oriented Lead Monitoring Network



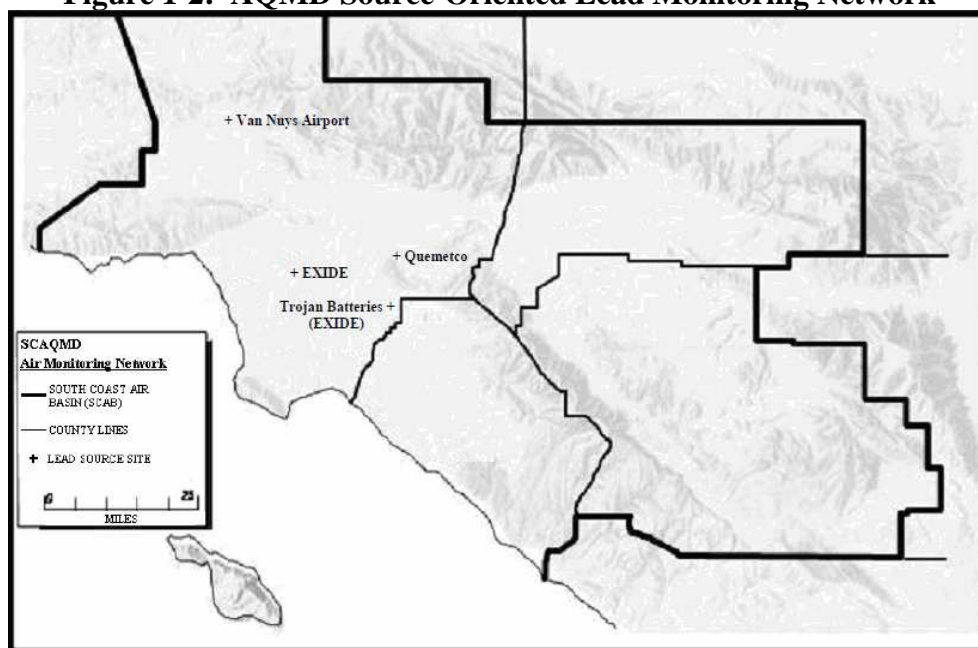
Source-Oriented Monitors

40 CFR Part 58, Appendix D, Paragraph 4.5 requires installation of source-oriented monitors at lead sources that are expected to or have been shown to contribute to violations with the lead NAAQS. The U.S. EPA requires agencies to have, at a minimum, one source-oriented State and Local Air Monitoring Station (SLAMS) site located at each lead source with lead emissions of 1.0 or more tons/year. The monitoring location is to be determined based on the modeled point of maximum impact, taking into consideration population exposure and logistical considerations.

The AQMD currently operates existing source-oriented monitoring networks at three facilities and one additional network recently installed at Van Nuys Airport to meet the monitoring requirements of the new lead NAAQS. General aviation aircraft use leaded aviation fuel, and have been identified as a source of lead emissions. The EPA Technical Support Document, “Lead Emissions from the Use of Leaded Aviation Gasoline in the United States” reports lead emissions estimates for the general aviation lead sources across the nation. Of these sources, Van Nuys Airport is located within the Basin with estimated emissions of 1.4 tons/year. Although required to conduct source-oriented monitoring of this source according to U.S. EPA regulations, the AQMD currently does not have jurisdiction for regulating the aviation gas formulation or the aircraft emissions since it is a mobile source.

Figure 1-2 below shows the locations of AQMD's current source-oriented monitoring networks and their respective lead sources.

Figure 1-2: AQMD Source-Oriented Lead Monitoring Network



Trojan Battery

At Trojan Battery, a battery manufacturer located in Santa Fe Springs, lead emissions are reported as 0.0145 tons/yr and sampling is conducted at one site. The site operates on a 1-in-6 day sampling schedule and had its highest monthly average of $0.23 \mu\text{g}/\text{m}^3$ in May 2007. Since September 2007, all monthly averages have been below the new lead NAAQS with an average concentration of $0.07 \mu\text{g}/\text{m}^3$. Although concentrations since 2007 have not shown any exceedances with the new lead NAAQS, it should be noted that this facility, and all other sources that use or process lead-containing materials, will be addressed in an amendment to Rule 1420.

Quemetco

At Quemetco, a lead-acid battery recycling facility located in the City of Industry, lead emissions are reported as 0.32 tons/yr and sampling is currently conducted at one site. Monthly averages last exceeded the concentration of $0.15 \mu\text{g}/\text{m}^3$ in 2005 at $0.38 \mu\text{g}/\text{m}^3$. In 2006, monthly averages ranged between 0.02 and $0.10 \mu\text{g}/\text{m}^3$. Sampling did not take place in 2007 and most of 2008 due to loss of access to the AQMD sampling location. Monitoring resumed in October 2008 with monthly measurements through January 2010 below $0.15 \mu\text{g}/\text{m}^3$ and a monthly average of $0.07 \mu\text{g}/\text{m}^3$.

Exide

Based on AER lead emissions reported from years 2004 through 2007, Exide is the only non-aviation source currently emitting over 1.0 ton/yr with an annual average of 1.5 tons/yr. Sampling is conducted at two locations with monitors identified as "Rehrig" and "ATSF". All 3-month averages for ambient air lead concentrations from February 2008 through January 2010

from the monitor located at Rehrig exceeded the new lead NAAQS of $0.15 \mu\text{g}/\text{m}^3$. Concentrations from the ATSF monitor exceeded the new lead NAAQS for all 3-month averaging periods from February 2008 through May 2008, and September 2008 through November 2008. Based on this data and monitoring efforts to date, the AQMD staff's conclusion is that lead-acid battery recycling facilities are the only known source category that has demonstrated consistent measurements classifying non-attainment designation within the Basin. Staff proposes immediate action of developing a new regulation for the only known source category that is currently unable to meet the new lead NAAQS.

CHAPTER 2: SUMMARY OF PROPOSED RULE 1420.1

OVERVIEW

PROPOSED RULE 1420.1

OVERVIEW

PR 1420.1 will address lead emissions produced by lead-acid battery recycling facilities. In addition to protecting public health, the major impetus for the rule is to establish requirements that will ensure that the Basin meets attainment status with the 2008 NAAQS for lead. As a result, the rule proposes standards for both emission control efficiency of lead control devices and concentrations for ambient lead levels resulting from the facility. Fugitive lead emissions are addressed through requirements for total enclosures of any process associated with the preparation, recovery, refining, and storage of lead-containing materials, excluding unbroken lead-acid batteries and finished lead products, at the facility. Additionally, source testing, ambient air concentration monitoring, and recordkeeping requirements have been added to ensure continuous compliance.

PROPOSED RULE 1420.1

Applicability

PR 1420.1 applies to lead-acid battery recycling facilities in the Basin that currently process an average of at least 300 tons of lead a day each. In order to avoid requiring potential newer, smaller lead-acid battery recycling facilities to comply with the requirements of this rule, a minimum process limit of 50,000 tons of lead a year was set as the threshold for rule applicability. The amount was derived by assuming an operating scenario of 5 days a week, 50 weeks a year, at 50 percent of the lowest current facility throughput limit (~400 tons of lead/day).

Definitions

PR 1420.1 includes definitions to the following terms used in the proposed rule. Please refer to subdivision (c) of PR 1420.1 for the definitions:

- Agglomerating Furnace
- Battery Breaking Area
- Demand Response Program
- Dryer
- Dryer Transition Piece
- Duct Section
- Emission Collection System
- Fugitive Lead-Dust
- Furnace and Refining/Casting Area
- Interruptible Service Contract
- Large Lead-acid Battery Recycling Facility
- Lead
- Lead Control Device
- Lead Point Source
- Leeward Wall
- Materials Storage and Handling Area
- Measurable Precipitation
- Person
- Process

- Property Line
- Sensitive Receptor
- Slag
- Smelting
- Smelting Furnace
- Total Enclosure
- Turnaround/Maintenance Activity

Requirements

Total Enclosures

All areas used in the lead-acid battery recycling operation to process or store lead-containing material will be required to be located within a total enclosure vented to a lead control device. The areas may be enclosed individually or in groups. The intent of this requirement is to provide maximum containment and minimize exposure of both fugitive lead-dust emissions generated in areas where processing, handling and storage of lead-containing materials occur. At a minimum, areas for total enclosure will include:

- Battery breaking areas;
- Material storage and handling areas, excluding areas where unbroken lead-acid batteries and finished lead products are stored;
- Dryer and dryer areas including transition pieces, charging hoppers, chutes, and skip hoists conveying any lead-containing material;
- Smelting furnace and smelting furnace areas charging any lead-containing material;
- Agglomerating furnace and agglomerating furnace areas;
- Refining and casting areas; and
- Any other area used in the lead-acid battery recycling operation to process or store lead-containing materials, as deemed necessary by the Executive Officer.

Each total enclosure is required to be maintained at a negative pressure of at least 0.02 mm of Hg and an in-draft velocity of at least 300 feet per minute at any opening such as vents, windows, passages, doorways, bay doors, and roll-ups. Depending on the size of the area that is to be enclosed, at least one differential pressure monitor continuously measuring the negative pressure of the total enclosure is required to be installed on the leeward wall. Areas with a total surface area of 10,000 square feet or more require a minimum of one digital differential pressure monitor at the wall of the total enclosure opposite the leeward wall, and at a wall location defined by the intersection of a perpendicular line between this wall and a straight line between the other two monitors in order to account for shifts in draft direction throughout the enclosure.

Digital differential pressure monitors must be capable of measuring in the negative pressure range of 0.01 to 0.2 mm Hg with a measure reading accuracy of at least 0.001 mm Hg. Additionally, to ensure availability of data that may provide useful when determining reasons for changes in ambient air quality concentrations during power outages, backup installation of an uninterruptible power supply will be required on all digital differential pressure monitors for facilities enrolled in a Demand Response Program. In-draft velocity monitoring is also required to ensure that negative pressure is maintained at all openings in the total enclosure. The facility will be required to measure the in-draft velocity by placing an anemometer, or other equivalent

measuring device approved by the Executive Officer, at the plane of an opening near its center that does not have an associated differential pressure monitor. Measurements are required to be taken at least once per operating shift, and at a minimum of one opening at each exterior wall of the total enclosure.

Lead Emission Controls

Lead point sources are defined by the rule as any location where lead is emitted into the atmosphere from processes or equipment used in the lead-acid battery recycling operation that pass through a stack or vent designed to direct or control its exhaust flow. All lead emissions from lead point sources are required to be vented to an emissions collection system that ducts the entire gas stream to a lead control device that meets a lead or particulate matter reduction of 99 percent or more. This requirement will be effective beginning January 1, 2011 in order to give facilities ample time to apply for permits and construct all necessary lead control devices.

Compliance Plan

Beginning July 1, 2011, any facility that exceeds an early detection ambient air lead concentration of $0.12 \mu\text{g}/\text{m}^3$ averaged over any 30 consecutive days will be required to submit a Compliance Plan that identifies additional measures to ensure that the ambient air quality concentration of $0.15 \mu\text{g}/\text{m}^3$ is not exceeded. The purpose of this provision is to address those facilities that still have difficulty demonstrating compliance with the ambient air quality concentration even after full implementation of PR 1420.1 requirements. The purpose of the Compliance Plan is to identify reasons why the standard is being exceeded and to require additional measures to ensure compliance with the $0.15 \mu\text{g}/\text{m}^3$ concentration. Each compliance plan submittal shall include:

- All data that led to the finding of the exceedance;
- A determination of all probable activities or operations that may have contributed to exceedance of $0.12 \mu\text{g}/\text{m}^3$;
- A comprehensive list of additional lead emission reduction measures (housekeeping measures, process modifications, lead control devices, etc.) to be implemented to ensure ambient concentrations of lead do not exceed $0.15 \mu\text{g}/\text{m}^3$ averaged over any 30 consecutive days;
- Locations within the facility and method(s) of implementation for each additional lead reduction measure; and
- An implementation schedule for each lead reduction measure to ensure ambient concentrations of lead do not exceed $0.15 \mu\text{g}/\text{m}^3$ averaged over any 30 consecutive days.

All lead reduction measures identified to ensure ambient concentrations of lead do not exceed $0.15 \mu\text{g}/\text{m}^3$ averaged over any 30 consecutive days, shall be implemented based on the schedule of the approved Compliance Plan.

Ambient Air Quality Concentration

Until January 1, 2012, large lead-acid battery recycling facilities that are subject to Rule 1420 will continually be required to meet an ambient air concentration standard of $1.5 \mu\text{g}/\text{m}^3$ averaged over 30 days. Beginning January 1, 2012, large lead-acid battery recycling facilities subject to PR 1420.1 will not be allowed to discharge into the atmosphere, at or beyond the property line of

the facility, emissions which cause ambient concentrations of lead to exceed $0.15 \mu\text{g}/\text{m}^3$ averaged over any 30 consecutive days. Exceedances measured at any rule-required ambient air lead monitor, including those operated by the District located within 1,000 feet of the facility property line, are subject to compliance with the standard. The averaging time for PR 1420.1 is more stringent than that of the lead NAAQS in order to ensure that non-attainment is not triggered.

New Facilities

Under PR 1420.1, any new facility that begins construction or operations on or after rule adoption shall not be located in an area that is zoned for residential or mixed use. In addition, any new facility shall not be located within 1,000 feet from the boundary of a sensitive receptor, a school under construction, or any area that is zoned for residential or mixed use. A siting provision for new facilities is proposed to avoid the possibility of high lead exposure for nearby residences and sensitive receptors from any new lead-acid battery recycling facility. This provision was included in PR 1420.1 due to the persistent nature of lead and the potential for lead particle accumulation over time. Individual events of small amounts of lead emitted by the facility may not trigger non-attainment status with the new lead NAAQS, however, chronic, cumulative lead exposure is a concern.

Housekeeping Requirements

The following housekeeping requirements are proposed to minimize fugitive lead-dust emissions. All requirements will be effective upon rule adoption.

- Wash down, at least three times a day, and occurring at least once per operating shift:
 - Roof tops of structures that either house areas that are associated with the storage, handling or processing of lead-containing materials; and
 - Any area where lead-containing wastes generated from housekeeping activities are stored, disposed of, recovered or recycled.
- Negative air containment enclosures of all affected areas where dust generation potential exists during turnaround/maintenance activities.
- Replacement of any heavy gauge steel hot acid exhaust duct sections which have developed more than two corrosion leaks or required patch repairs.
- Monthly structural integrity inspections of any structures that house, contain, or control lead emission points or fugitive lead-dust emissions.
- Encapsulation (paving, asphaltting, etc.) of all facility grounds for the purpose of providing a surface that accommodates ease of cleaning.
- Prohibition of weather caps on any stack that is a lead emissions source.
- Storage of all materials capable of generating any amount of fugitive lead-dust in sealed, leak-proof containers. Examples of materials include spent filters used in lead control devices and lead-containing waste generated from housekeeping requirements.
- Transport of all materials capable of generating any amount of fugitive lead-dust emissions within closed conveyor systems or in sealed, leak-proof containers.

The proposed rule also requires cleanings of surface impoundment ponds or reservoirs. These ponds are typically exposed to the atmosphere and used to hold storm water and spent water used for washing down areas or objects that may contain fugitive-lead dust. These holding areas pose the potential for release of lead to the atmosphere when they are drained or when water

evaporates. This proposed provision will require facilities to remove any lead-containing material, including sludge, from the entire surface area of any surface impoundment pond or reservoir within 24 hours after the water level is one inch above the bottom of the pond or reservoir. Surfaces shall be washed down weekly thereafter until used again for holding water.

Onsite Mobile Sweepers

Another proposed requirement intended to reduce fugitive lead-dust emissions is periodic facility sweepings using onsite mobile sweepers. Facilities will be required to sweep all facility areas subject to vehicle and foot traffic and vehicle wet wash down areas with an onsite mobile sweeper that is in compliance with District Rule 1186. Sweeping will be required three times each day, occurring at least once per operating shift with each event not less than four hours apart. Additionally, any accidents, mishaps and/or process upsets occurring in the aforementioned areas that result in the deposition of lead-containing material or dust shall be swept immediately using an onsite mobile sweeper. Sweeping will not be required within ten meters of any ambient air monitor location when conducting sample collection in order to avoid interference. Further, sweeping will not be required on any day where the onsite measured rain amount is greater than 0.01 inches in any 24-hour calendar day.

Vehicle Wet Washing Area

A requirement for a vehicle wet washing area is also proposed to further limit the amount of fugitive lead-dust emissions generated and/or transported by vehicular traffic in and out of the facility. All vehicles transporting lead-containing materials will be required to be washed to remove all visible dust, particles, and mud prior to exiting the facility. Onsite mobile sweepers will be required to be wet washed after operation. The facility will also be required to inspect each vehicle to ensure that it is sufficiently cleaned prior to leaving the facility. All water used for the washing process will be required to be collected, handled and treated such that further release of lead emissions are avoided. After use, ground surfaces of vehicle wet washing areas will be required to be washed down before they dry in order to prevent the potential of any fugitive lead-dust or residue from becoming airborne.

Ambient Air Monitoring and Sampling Requirements

Each facility will be required to collect and analyze ambient air lead samples to determine compliance with the ambient air quality lead concentration standard of PR 1420.1. No later than six months after the date of rule adoption, the facility shall conduct ambient air sampling as follows:

- Collect samples from a minimum of three sampling sites approved by the Executive Officer, located at or beyond the property line of the facility;
- Collect samples from a minimum of one Executive Officer-approved sampling site to determine background ambient lead concentration;
- Collect 24-hour, midnight-to-midnight, samples at all sites for 30 consecutive days from the date of initial sampling, followed by one 24-hour, midnight-to-midnight, sample collected every three days, on a schedule approved by the Executive Officer;
- Submit collected samples to an Executive Officer-approved laboratory for analysis within three calendar days of collection and provide duplicate samples to the District upon request by the Executive Officer; and

- Calculate ambient lead concentrations for individual 24 hour samples within 15 calendar days of the end of the calendar month.

Facilities will also have to continuously monitor wind speed and direction at each of the ambient air quality monitoring system at all times to supplement data analysis of samples collected. Only personnel approved by the Executive Officer will be allowed to conduct ambient air quality monitoring, and sampling equipment shall be operated and maintained in accordance with U.S. EPA-referenced methods. All ambient air quality monitoring systems will be required to be equipped with a backup, uninterruptible power supply if the facility is enrolled into a Demand Response Program.

Source Tests

Annual source tests will be required for all lead control devices in order to demonstrate compliance with the 99 percent control efficiency standard. Initial source tests for new and modified lead control devices with an initial start-up date on or after the adoption date of the rule will be required within 60 days of initial start-up. Existing lead control devices in operation before the adoption date of the rule will require a source test no later than six months after adoption of the rule. An existing source test, for existing lead control devices, conducted on or after January 1, 2010 may be used as the initial source test as long as the test:

- Demonstrated compliance with the 99 percent control efficiency;
- Is representative of the method to control emissions currently in use; and
- Was conducted using applicable and approved test methods.

The rule lists the following applicable test methods:

- SCAQMD Methods 5.1, 5.2, and 12.1;
- CARB Methods 12 and 436; and
- EPA Methods 9 and 12.

Use of an alternative or equivalent test method will be allowed as long as it is approved in writing by the Executive Officer, CARB, and the U.S. EPA. Facilities will be required to submit a pre-test protocol to the Executive Officer at least 60 calendar days prior to conducting the source test. Notification to the Executive Officer in writing shall also be required one week prior to conducting the source test.

Recordkeeping

Records indicating quantities and lead content of each lead-containing material processed at facilities are required to be maintained by the facility. Examples of records include purchase records, usage records, and results of lead content analysis. Recordkeeping for all housekeeping, ambient air lead monitoring, and vehicle wet washing required by the rule must also be maintained. All records shall be maintained for five years and maintained onsite for at least two years.

Reporting

Ambient Air Monitoring

Facilities will be required to submit reports for monthly ambient air monitoring results for lead and wind data measured at each sampling location on a monthly basis. Reports must be submitted starting no later than six months after adoption of the rule. In addition, any

exceedance of the ambient air quality concentration shall be reported to the Executive Officer within 24 hours of receipt of completed sample analysis.

Turnaround/Maintenance Activity and Unplanned Shutdown Reporting

A Turnaround/Maintenance Lead Abatement Notification must be submitted at least four weeks prior to the beginning of any turnaround/maintenance activity. Notification information shall include a description of the activity including dates, times, persons conducting the activity, and specific locations at the facility where activities will be conducted. Lead abatement procedures that will be used to minimize lead emissions are also required. For the purpose of the rule, turnaround/maintenance activity means any maintenance activity that potentially generates fugitive-lead dust as recognized by the Executive Officer. Below is a list of specific types of activities that require a lead abatement notification if the potential for fugitive-lead dust generation exists:

- Replacement of refractory, filter bags, or any internal or external part of equipment used to process or handle lead containing materials;
- Replacement of any heavy gauge steel hot acid gas duct section used to convey lead-containing exhaust;
- Any metal cutting or welding;
- Application of architectural/maintenance coatings;
- Resurfacing of ground;
- Building construction/demolition.

Unplanned shutdown of any equipment that processes lead-containing material shall be reported to the Executive Officer by calling 1-800-CUT-SMOG within 1 hour of shutdown. A written notification shall also be made to the Executive Officer no later than three calendar days after the unplanned shutdown occurred.

Initial Facility Status Report

No later than six months after adoption of the rule, existing facilities will be required to submit an Initial Facility Status Report. Minimum information required in the report is specified in Appendix 1 of the rule. Below is a summary of required information:

- General facility information (name, address, contact number);
- Sensitive receptor locations with respect to the facility;
- Facility building parameters;
- Description of the lead processes at the facility;
- For all three calendar years dating back from the adoption of the rule:
 - ✓ Annual amounts and lead content of all lead-containing materials processed;
 - ✓ Maximum and average daily and monthly operating schedules;
 - ✓ Maximum and average daily and monthly lead-processing rates for all equipment and processes;
 - ✓ Maximum and average daily and annual lead emissions;
- Engineering drawings, calculations, or other methodology to demonstrate compliance with emission standards; total enclosures; ambient air lead monitoring and concentrations; and source tests;

- Intended source test dates for all lead control devices; and
- The name, title, and signature of the responsible official certifying the report.

Ongoing Facility Status Report

Facilities will be required to update the Executive Officer of facility status and changes through submittal of an Ongoing Facility Status Report. Reports will be due every year on or before February 1st and shall include information covering the preceding calendar year. Minimum information required in the report is specified in Appendix 2 of the rule. Below is a summary of required information:

- ✓ General facility information (name, address, contact number);
- ✓ Quantities of lead processed;
- ✓ Lead content of lead-containing materials processed;
- ✓ Maximum and average daily and monthly lead-processing rates from all equipment and processes;
- ✓ Maximum and average daily and annual emissions of lead from all emission points and fugitive lead-dust sources;
- ✓ Description of changes in sensitive receptor locations and distances since the previous reporting period;
- ✓ Description of changes in monitoring, processes, or controls since the previous reporting period; and
- ✓ The name, title, and signature of the responsible official certifying the report.

CHAPTER 3: IMPACT ASSESSMENT

INTRODUCTION

IMPACT ASSESSMENT FOR PROPOSED RULE 1420.1

CALIFORNIA ENVIRONMENTAL QUALITY ACT

SOCIOECONOMIC ASSESSMENT

**DRAFT FINDINGS UNDER CALIFORNIA HEALTH AND SAFETY CODE
SECTION 40727**

COMPARATIVE ANALYSIS

INTRODUCTION

Various potential sources of lead within the Basin were evaluated in order to plan strategies for attainment with the new lead NAAQS. Staff has conducted an analysis of lead-emitting sources that may contribute to non-attainment status with the new lead NAAQS. Measurements taken at AQMD's monitoring network for ambient air lead concentrations were also reviewed for years 2007 through 2009, along with an analysis of lead emissions using multiple data sources including AQMD's Annual Emissions Reporting program, permitting data, and compliance data for years 2004 through 2007. Additional information from AQMD's AB2588 air toxics program, including results of historical and current source test reports, were also included in the evaluation.

Historical AQMD compliance data indicates that some exceedances of ambient air quality concentrations for lead have been related to fugitive lead-dust emissions from partially controlled emission points, process upsets, and minimal housekeeping practices. PR1420.1 requirements for total enclosures of all major lead recovery and storage processes along with enhanced housekeeping practices are expected to achieve reductions in fugitive lead-dust emissions and consequently reduce ambient air lead concentrations resulting from lead-acid battery recycling facilities.

IMPACT ASSESSMENT FOR PROPOSED RULE 1420.1

A technical analysis of the impacts of requirements for facilities subject to PR 1420.1 is currently being conducted to evaluate potential economic and environmental impacts of PR 1420.1. The impact analysis is based on compliance with requirements proposed to achieve attainment with the 2008 NAAQS for lead. Implementation of PR 1420.1 would result in a net environmental benefit due to the further reduction of lead exposure and associated health benefits. However, potential cost and environmental impacts may occur in association with the installation of air pollution control devices and other measures to control lead emissions.

CALIFORNIA ENVIRONMENTAL QUALITY ACT

Pursuant to California Environmental Quality Act (CEQA) Guidelines §15252 and AQMD Rule 110, the AQMD is preparing a Draft Environmental Assessment (EA) to analyze any potential adverse environmental impacts associated with PR 1420.1. Upon completion, the CEQA document will be released for public review and comment, and will be available at AQMD Headquarters, by calling the AQMD Public Information Center at (909) 396-2039, or by accessing AQMD's CEQA website at: www.aqmd.gov/ceqa.

SOCIOECONOMIC ASSESSMENT

Proposed Rule 1420.1 will incorporate the latest amendments to the federal NAAQS for Lead, as adopted by the U.S. EPA on October 15, 2008. PR 1420.1 would also propose additional provisions beyond the NAAQS which include total enclosures, detailed housekeeping requirements, increased monitoring, and capture efficiency testing of add-on air pollution control

devices. A socioeconomic assessment will be included as part of the Public Hearing package and made available to the public at least 30 days prior to the Public Hearing.

DRAFT FINDINGS UNDER CALIFORNIA HEALTH AND SAFETY CODE SECTION 40727

Requirements to Make Findings

California Health and Safety Code Section 40727 requires that prior to adopting, amending or repealing a rule or regulation, the AQMD Governing Board shall make findings of necessity, authority, clarity, consistency, non-duplication, and reference based on relevant information presented at the public hearing and in the staff report.

Necessity

A need exists to adopt Proposed Rule 1420.1 in order to 1) implement the more stringent National Ambient Air Quality Standard for lead set by the U.S. EPA adopted October 15, 2008, 2) impose requirements intended to reduce lead emissions from the source category that has caused non-attainment designation of the Los Angeles County portions of the Basin, and 3) to protect public health by reducing cancer risk and other health effects from exposure to lead emissions pursuant to California Health and Safety Code Sections 39669.5 and 44390 through 44394.

Authority

The AQMD Governing Board has authority to adopt Proposed Rule 1420.1 pursuant to the California Health and Safety Code Sections 39002, 39650 et. seq., 39669.5, 40000, 40001, 40440, 40441, 40702, 40725 through 40728, 41508, 41700, 41706, 44365, and 44390 through 44394.

Clarity

PR 1420.1 is written or displayed so that its meaning can be easily understood by the persons directly affected by it.

Consistency

PR 1420.1 is in harmony with and not in conflict with or contradictory to, existing statutes, court decisions or state or federal regulations.

Non-Duplication

PR 1420.1 will not impose the same requirements as any existing state or federal regulations, other than implementing the NAAQS for lead. The proposed rule is necessary and proper to execute the powers and duties granted to, and imposed upon, AQMD.

Reference

By adopting PR 1420.1, the AQMD Governing Board will be implementing, interpreting or making specific the provisions of the California Health and Safety Code Sections 40001 (rules to achieve and maintain ambient air quality standards), 41700 (nuisance), 41706(b) (emission

standards for lead compounds from non-vehicular sources), and Federal Clean Air Act Section 112 (Hazardous Air Pollutants).

Rule Adoption Relative to Cost-effectiveness

Health and Safety Code Section 40922 requires that a cost-effectiveness ranking of available and proposed control measures is to be assessed for plans prepared pursuant to and Health and Safety Code, Part 3, Chapter 10. PR 1420.1 is not a control measure in the 2007 Air Quality Management Plan (AQMP) and thus, was not ranked by cost-effectiveness relative to other AQMP control measures in the 2007 AQMP. Furthermore, pursuant to Health and Safety Code Section 40910, cost-effectiveness in terms of dollars per ton of pollutant reduced is only applicable to rules regulating ozone, carbon monoxide, sulfur dioxide, and nitrogen dioxide and does not apply to toxic air contaminants.

Incremental Cost-effectiveness

Health and Safety Code Section 40920.6 requires an incremental cost effectiveness analysis for Best Available Retrofit Control Technology (BARCT) rules or emission reduction strategies when there is more than one control option which would achieve the emission reduction objective of the proposed amendments, relative to ozone, CO, SO_x, NO_x, and their precursors. Since the proposed rule applies to a toxic air contaminant, the incremental cost effectiveness analysis requirement does not apply. Furthermore, PR 1420.1 is not a BARCT rule, but rather is intended to bring the AQMD into compliance with the federal NAAQS.

AQMP and Legal Mandates

PR 1420.1 is not a measure in the AQMP. PR 1420.1 is an air toxic rule that would implement the requirements of the U.S. EPA's NAAQS for lead and reduce cancer risk.

COMPARATIVE ANALYSIS

Health and Safety Code section 40727.2 requires a comparative analysis of the proposed rule with any rules and regulations applicable to the same source. This comparative analysis does not include the state ambient air quality standard due to it still being at 1.5 µg/m³.

Table 3-1: Comparison of PR 1420.1 with District Rule 1420, the 2008 Lead NAAQS and the NESHAP for Secondary Lead Smelters

Rule Element	PR 1420.1	District Rule 1420	2008 Lead NAAQS	NESHAP from Secondary Lead Smelting
Applicability	Lead-acid battery recycling facilities processing more than 50,000 lead-tons/year	Facilities that use or process lead-containing materials	All States	Secondary lead smelters
Ambient Air Quality Standard	0.15 µg/m ³ averaged over 30 consecutive days	1.5 µg/m ³ averaged over 30 days	0.15 µg/m ³ : - 3-month average	None

Rule Element	PR 1420.1	District Rule 1420	2008 Lead NAAQS	NESHAP from Secondary Lead Smelting
			- Demonstrated over a 3-year period.	
Total Enclosures	Total enclosures for all areas where processing, handling and storage of lead-containing materials occur	None	None	Total <u>or</u> partial enclosures for: - Smelting furnace and dryer charging hoppers, chutes, and skip hoists; - Smelting furnace lead taps, and molds during tapping; - Refining kettles; - Dryer transition pieces; and - Agglomerating furnace product taps
Emission Standard for Lead Control Devices	99% control efficiency for particulate matter or total lead	99% control efficiency for particulate matter; 98% control efficiency for lead	None	Concentration of 2.0 mg/dscm
Compliance Plan	Only required if a facility exceeds $0.12 \mu\text{g}/\text{m}^3$; 30-day consecutive day avg. Identifies additional lead control measures beyond the rule	Specifies general facility information	None	None
Ambient Air Monitoring Requirements	- Minimum of three monitors at facility locations approved by the Executive	- Minimum of two monitors at facility locations approved by the Executive	For states, a minimum of: - One source-oriented monitor at all facilities	None

Rule Element	PR 1420.1	District Rule 1420	2008 Lead NAAQS	NESHAP from Secondary Lead Smelting
	Officer - Samples collected every three days - Results reported monthly	Officer - Samples collected every six days - Results reported quarterly	emitting 1.0 tons of lead/year; and - One non-source-oriented monitor in urban areas with a population of at least 500,000 people - Samples collected every six days	
Housekeeping Requirements	Prescribed requirements for cleaning frequencies of specific areas; turnaround/maintenance activity; building integrity inspections; storage and transport of lead-containing materials; onsite mobile sweeping; vehicle wet washing; and surface impoundment cleanings	Requirements for storage of dust-forming material; weekly cleaning of surfaces subject to vehicular or foot traffic; and storage, disposal, recovery, and recycling of lead or lead-containing wastes generated from housekeeping activities	None	Periodic wash down of plant roadways (lower frequency than PR 1420.1); wet suppression of battery breaking area storage piles; vehicle wet washing of vehicles exiting the materials handling and storage areas
Reporting Requirements	- Ambient air lead and wind monitoring; - Shutdown and turnaround/maintenance activity reports; - Initial Facility Status Reports - Ongoing	Ambient air lead and wind monitoring for any lead-processing facility that is required or elects to do ambient air monitoring	For states: - State Implementation Plan submittal; - Periodic emissions reports from stationary source monitors;	- Lead control alarm/failure reports including fugitive dust control measures performed during failures

Rule Element	PR 1420.1	District Rule 1420	2008 Lead NAAQS	NESHAP from Secondary Lead Smelting
	Facility Status Reports		- Ambient air quality data and associated assurance data	

REFERENCES

REFERENCES

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“Lead in Air,” Environmental Protection Agency, (<http://www.epa.gov/air/lead.html>), June 12, 2009.

“National Ambient Air Quality Standards for Lead; Final Rule,” 40 CFR Parts 50, 51, 53, and 58, Environmental Protection Agency, November 2008.

“Prioritization of Toxic Air Contaminants Under the Children’s Health Act,” Environmental Protection Agency, Office of Environmental Health Hazard Assessment, October 2001.

“Secondary Lead Smelter eTool,” United States Department of Labor, Occupational Safety and Health Administration, (<http://www.osha.gov/SLTC/etools/leadsmelter/index.html>).

“South Coast Air Quality Management District Lead (Pb) Monitoring Network Plan,” South Coast Air Quality Management District, July 2009.

“Staff Report for Proposed Rule 1420: Emissions Standards for Lead,” South Coast Air Quality Management District, August 1992.

APPENDIX A: COMMENTS AND RESPONSES

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